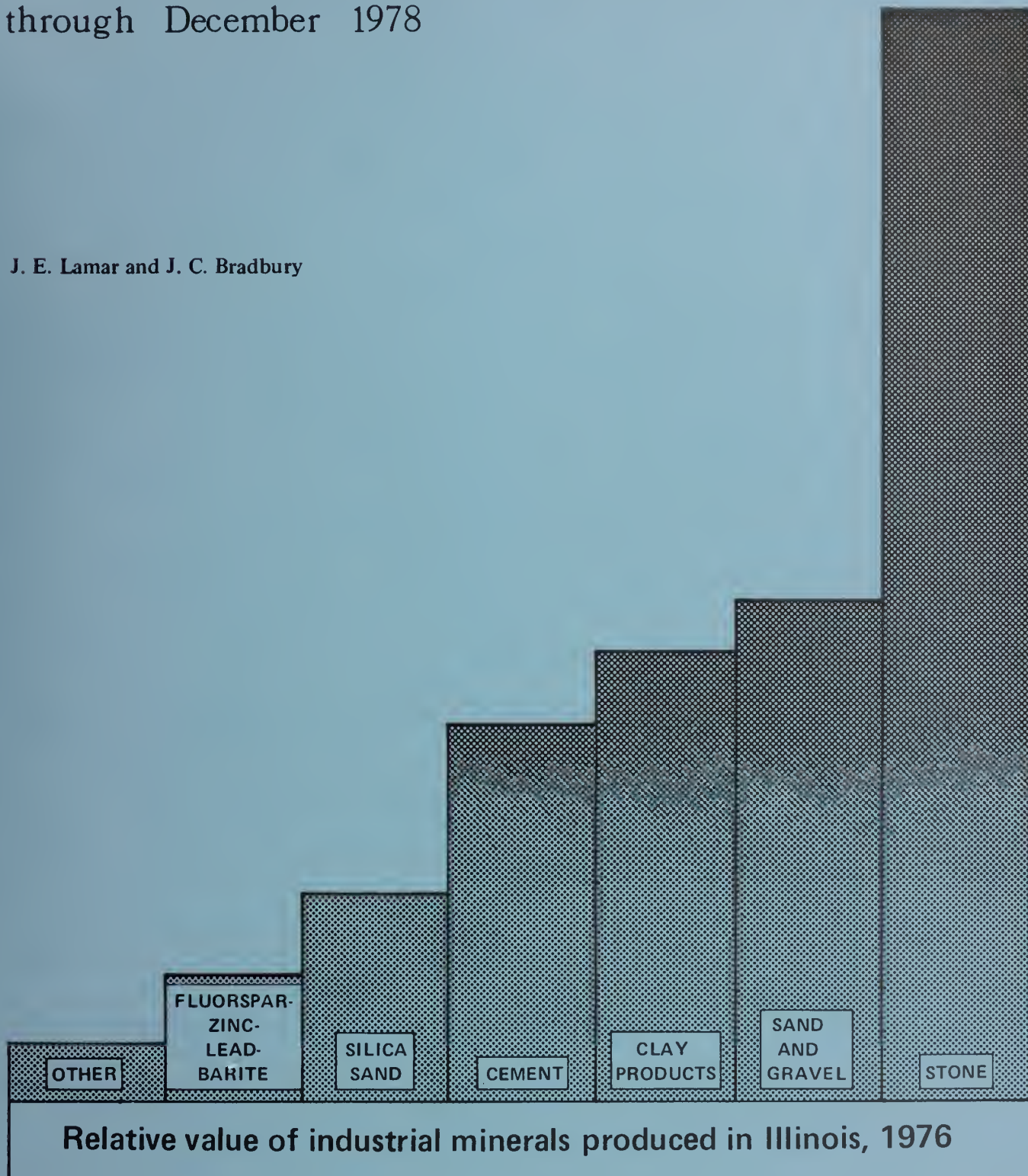


INDUSTRIAL MINERALS PUBLICATIONS OF THE ILLINOIS STATE GEOLOGICAL SURVEY through December 1978

J. E. Lamar and J. C. Bradbury



Lamar, J E

Industrial minerals publications of the Illinois State Geological Survey through December 1978/by J. E. Lamar and J. C. Bradbury. Urbana: Illinois State Geological Survey, January 1979.

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INDUSTRIAL MINERALS PUBLICATIONS
OF THE ILLINOIS STATE GEOLOGICAL SURVEY
through December 1978

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In addition to publications concerning industrial minerals, the Illinois State Geological Survey maintains a considerable volume of information for reference, including many well logs, pertaining to industrial mineral resources. Out-of-print publications (*) may be consulted at the Survey library and in other libraries; some may be borrowed for limited periods. Members of the Survey staff will confer with visitors on questions regarding mineral resources and their uses.

Single copies of the reports listed below that are not out of print are available free of charge. The report series are abbreviated as follows:

B—Bulletin

C—Circular

Ed. Ser.—Educational Series

EGN—Environmental Geology Note

IP—Illinois Petroleum

IMN—Industrial Minerals Notes

MEB—Mineral Economics Brief

Min. Inv.—Mining Investigations

RI—Report of Investigations

A complete list of Survey publications can be obtained by writing to the Illinois State Geological Survey, Natural Resources Building, Urbana, IL 61801.

Limestone and dolomite

B 17. Portland-Cement Resources of Illinois. 1912. 121 p., 19 pls., 3 tables. Raw materials in selected areas; cement manufacture.

B 46. Limestone Resources of Illinois. 1925. 392 p., 70 figs., 19 tables. Resources by counties; chemical analyses and physical tests.

*B 61. Rock Wool from Illinois Mineral Resources. 1934. 262 p., 34 figs., 39 tables. Occurrence of suitable materials, chemistry of rock wool production, and economic factors influencing the Illinois market.

B 68B. Papers on Industrial Minerals. 1944. Resistance of Chicago Area Dolomites to Freezing and Thawing. P. 249-262, 14 figs., 2 tables.

B 91. Handbook on Limestone and Dolomite for Illinois Quarry Operators. 1967. 119 p., 61 figs., 10 tables. A wide-ranging discussion of the properties and characteristics of limestone and dolomite; of general interest.

RI 8. Preliminary Report on the Economic Mineral Resources of Calhoun County. 1926. 21 p., 3 figs. Deals especially with limestone, shale, and sandstone.

RI 12. Limestone for Sewage Filter Beds—Causes of Disintegration, Desirable Properties, and Methods of Testing. 1927. 21 p., 5 figs.

*RI 17. The Limestone Resources of the Pontiac-Fairbury Region. 1929. 27 p., 7 figs.

*RI 23. High-Calcium Limestone near Morris, Illinois. 1931. 26 p., 4 figs. (See also Supplement, C 4.)

*RI 49. A Summary of the Uses of Limestone and Dolomite. 1938. 50 p. (See C 321.)

RI 65. Agricultural Limestone Resources of Cumberland, Effingham, Clay, Richland, and Jasper Counties. 1940. 44 p., 8 figs., 12 tables.

*RI 90. High-Purity Dolomite in Illinois. 1943. 89 p., 34 figs. Deposits in the Chicago, Kankakee, Rockford, Savanna, Port Byron, and Grafton-Hardin regions; chemical analyses.

*RI 164. Water Soluble Salts in Limestones and Dolomites. 1953. 16 p., 1 fig., 7 tables. Fluid inclusions in Illinois limestones and dolomites and their probable composition.

*RI 184. Illinois Building Stones. 1955. 25 p., 12 figs. Limestone, dolomite, marble, and sandstone.

RI 195. Preliminary Report on Portland Cement Materials in Illinois. 1956. 34 p., 3 figs., 3 tables. Limestone, shale, and clay resources; chemical analyses.

RI 200. Chemical Analyses of Illinois Limestones and Dolomites. 1957. 33 p., 2 tables. 670 analyses from 43 counties.

RI 211. Limestone Resources of Extreme Southern Illinois. 1959. 81 p., 8 pls., 4 figs., 7 tables. Resources by county and by geological formation; chemical analyses and physical tests.

*C 4. Results of Test-Drilling of Limestone near Morris, Illinois. 1933. 6 p., 1 table. (See also RI 23.)

*C 94. Agricultural Limestone Resources of Illinois—Their Character and Occurrence and Methods of Examination. 1943. 33 p., 7 figs.

*C 156. Acid Etching in the Study of Limestones and Dolomites. 1950. 47 p., 22 figs. A means of studying the texture and impurities in relation to utilization.

*C 157. Short Papers on Geologic Subjects: (4) Physical Characteristics of the Oolite Grains of the Ste. Genevieve Formation. 1950. P. 116-119.

*Out of print.

- *C 170. Short Papers on Geologic Subjects: (2) Petrology of the Basal High-Purity Bed of the Burlington Limestone. 1951. P. 160-164, 7 figs., 1 table.
- *C 179. Short Papers on Geologic Subjects: (4) Barite in the La Salle Limestone of Illinois. 1952. P. 126-128, 3 figs. Chiefly of significance to mineralogists or collectors.
- C 221. Sampling Limestone and Dolomite Deposits for Trace and Minor Elements. 1956. 18 p., 5 figs., 6 tables.
- C 230. Subsurface Dolomite and Limestone Resources of Grundy and Kendall Counties. 1957. 25 p., 7 figs.
- *C 243. Trace Elements in Illinois Pennsylvanian Limestones. 1957. 34 p., 4 figs., 5 tables. Data on boron, barium, chromium, copper, iron, potassium, manganese, molybdenum, sodium, nickel, lead, strontium, titanium, vanadium, and zinc.
- C 261. Some Plastic Properties of Pastes Made from Hydrated Dolomitic and High-Calcium Limes. 1958. 9 p., 2 pls., 3 figs., 7 tables.
- C 270. Effects of Hydration Procedures and Calcination in the Presence of NaCl on the Properties of Lime Hydrates. 1959. 33 p., 1 pl., 20 figs., 10 tables.
- *C 284. Salem Limestone in Southwestern Illinois. 1960. 32 p., 3 pls., 6 figs., 3 tables. Resources in Mississippi bluff area; textural details, stratigraphy, and chemical analyses.
- C 321. Uses of Limestone and Dolomite. 1961. 41 p., 2 tables, index. (Reprinted with addenda, 1965.) Describes 75 uses; extensive bibliography.
- C 345. Impact Resistance of Illinois Limestones and Dolomites. 1963. 20 p., 9 figs., 5 tables. Laboratory tests with falling weight.
- C 346. Limestone Resources of the Lower Kaskaskia Valley. 1963. 22 p., 1 pl., 2 figs., 3 tables. Resources, chemical analyses, and physical tests.
- C 370. Mississippian Limestone Resources in Fulton, McDonough, and Schuyler Counties, Illinois. 1964. 27 p., 5 figs., 8 tables, app. Resources, chemical analyses, and physical tests.
- C 379. Dolomite Resources of Boone and De Kalb Counties. 1965. 22 p., 5 figs., 3 tables. Resources, depth to unexposed deposits, and chemical analyses.
- *C 389. Grand Tower Limestone (Devonian) of Southern Illinois. 1965. 34 p., 7 figs., app.
- C 390. Limestone Resources of Madison County, Illinois. 1965. 39 p., 1 pl., 6 figs., 2 tables. Re-
- sources, geologic map, stratigraphy, underground mining, and chemical analyses.
- C 404. Electron Microscope Study of Microtexture and Grain Surfaces in Limestones. 1966. 18 p., 8 pls.
- *C 408. One-Dimensional Disorder in Carbonates. 1967. 61 p., 12 figs., 5 tables, app.
- C 415. Thermal Expansion of Certain Illinois Limestones and Dolomites. 1967. 33 p., 4 pls., 9 figs., 7 tables.
- *C 422. Geology Related to Land Use in the Hennepin Region. 1968. 24 p., 10 figs., 2 tables. Data on limestone are given.
- *C 438. Geology for Planning in McHenry County. 1969. 31 p., 2 figs., 1 table, app. Contains data on stone.
- C 448. Limestone and Dolomite Resources in Jersey County, Illinois. 1970. 28 p., 1 pl., 3 figs., 2 tables.
- C 460. Summary of the Geology of the Chicago Area. 1971. 80 p., 1 pl., 27 figs. Includes data on dolomite and limestone.
- C 465. Geology for Planning in St. Clair County, Illinois. 1971. 35 p., 8 pls., 4 figs., 8 tables. Includes discussion of limestone resources.
- C 472. Limestone Resources of Scott County, Illinois. 1972. 24 p., 1 pl., 2 figs., 2 tables, app. Resources, stratigraphy, chemical analyses, operating quarries, outcrop descriptions.
- C 478. Geology along the Illinois Waterway—A Basis for Environmental Planning. 1973. 48 p., 7 pls., 6 figs., 2 tables. Summary of resources, by district, of bottomlands, bluffs, and 1-mile-wide strip of upland; stratigraphy, surficial geology maps.
- C 487. Chronology and Molluscan Paleontology of Two Post-Woodfordian Bogs in Northeastern Illinois. 1974. 28 p., 3 figs. Includes descriptions of marl deposits.
- C 497. Geology for Planning in the Springfield-Decatur Region. 1977. 76 p., 7 pls., 21 figs., 8 tables, 2 app. Includes discussion and map of limestone resources.
- C 502. The Platteville and Galena Groups in Northern Illinois. 1978. 75 p., 17 figs., 1 table. Stratigraphy, lithology, fauna, and distribution. Includes descriptions of 74 geologic sections.
- *IMN 4. Capsule Report. Subsurface Dolomite in Lake, McHenry, and part of Northwestern Cook Counties. 1956. 7 p. Data from well records.
- *IMN 5. Gypsum and Anhydrite. Fluorspar for Controlling Vanadium Staining. II—Possibilities for Calcitic Limestone Underground in Kankakee

*Out of print.

- and Iroquois Counties. 1957. P. 6-9. Data from well records.
- *IMN 10. Recent Price and Cost Trends Relating to Stone, Sand, and Gravel Production in Illinois. 1959. 4 p.
- *IMN 15. Black and Brown Terrazzo Chips from Southern Illinois Limestones. 1962. 7 p.
- IMN 20. Chemical Composition of Some Deep Limestones and Dolomites in Livingston County, Illinois. 1964. 5 p., 2 tables.
- IMN 23. Limestone Resources of Jefferson and Marion Counties, Illinois. 1965. 15 p., 3 figs., 2 tables, app. Resources; chemical analyses.
- IMN 24. Thermal Expansion of Certain Illinois Limestones. 1966. 6 p., 1 fig., 1 table. Expansion in range -4° to 140°F.
- IMN 27. High-Purity Limestones in Illinois. 1966. 20 p., 3 figs., 1 table.
- IMN 39. Alumina Content of Carbonate Rocks As an Index to Sodium Sulfate Soundness—A Preliminary Report. 1969. 10 p., 2 figs., 1 table.
- IMN 41. Two-Dimensional Shape of Sand Made by Crushing Illinois Limestones of Different Textures. 1970. 23 p., 8 figs., 5 tables.
- IMN 54. Properties of Carbonate Rocks Affecting Soundness of Aggregate—A Progress Report. 1974. 20 p., 10 figs., 6 tables. Attempted correlation of silica and alumina content, mineralogy, structure, mean pore size, Rockwell hardness, and water absorption with sodium-sulfate soundness test results.
- IMN 57. Electric Utility Plant Flue—Gas Desulfurization: A Potential New Market for Lime, Limestone, and Other Carbonate Materials. 1974. 19 p., 6 figs., 2 tables. Estimates of annual tonnages of lime or limestone needed for widespread installation of lime/limestone flue-gas scrubbers.
- *EGN 21. Mineralogy and Petrography of Carbonate Rocks Related to Control of Sulfur Dioxide in Flue Gases—A Preliminary Report. 1968. 9 p., 3 figs., 2 tables.
- *EGN 33. Geology for Planning in De Kalb County, Illinois. 1970. 26 p., 6 figs. Data on dolomite are included.
- *EGN 38. Petrographic and Mineralogical Characteristics of Carbonate Rocks Related to Sorption of Sulfur Oxides in Flue Gases. 1970. 31 p., 52 figs., 8 tables.
- EGN 50. Petrographic Properties of Carbonate Rocks Related to Their Sorption of Sulfur Dioxide. 1971. 37 p., 12 figs., 12 tables.
- *EGN 55. Use of Carbonate Rocks for Control of Sulfur Dioxide in Flue Gases. Part I. Petrographic Characteristics and Physical Properties of Marls, Shells, and Their Calcines. 1972. 61 p., 6 pl., 20 figs., 8 tables, 2 app. Descriptions of marls from Ohio, New York, Pennsylvania, Virginia, Indiana, Michigan, Wisconsin, Minnesota, and Illinois; descriptions of shells from Florida, Louisiana, and Alabama.
- *EGN 68. Lake Marls, Chalks, and other Carbonate Rocks with High Dissolution Rates in SO₂-scrubbing liquors. 1974. 22 p., 1 pl., 10 figs., 2 tables. Summary of results of testing; table and location map of sample sources.
- Reprint. Petrology of the Fredonia Oolite in Southern Illinois. 1950. Am. Assoc. Petroleum Geologists Bull., v. 34, no. 12, p. 2318-2336, 19 figs., 2 tables.
- *Reprint 1956-G. Properties of Calcium and Magnesium Carbonates and Their Bearing on Some Uses of Carbonate Rocks. 1955. 74 p., 1 table. Extensive bibliography.
- Reprint 1966-M. Geology of Cement Raw Materials in Illinois. 1966. 27 p., 13 figs., 3 tables.
- *Reprint 1967-O. Nonlinear Thermal Expansion of Coarse Grain Limestones. 1967. 5 p., 2 figs., 4 tables.
- *Reprint 1970-V. Fracture Surfaces of Carbonate Aggregates: A Scanning Electron Microscope Study. 1970. 21 p., 26 figs., 1 table.
- *Reprint 1972-E. Properties of Carbonate Rocks Related to SO₂ Reactivity. (Reprinted from Environmental Science and Technology, v. 6, April, p. 350-360, 1972). Mineralogy, texture, grain size, and pore structure related to SO₂ reactivities of 11 carbonate rock types.
- Reprint 1973-B. Petrography of Carbonate Rocks by Image Analysis. (Reprinted from 7th Forum on Geology of Industrial Minerals Proc. Florida Bureau Geology Spec. Pub. 17, p. 161-170, 1971).
- *Reprint 1973-K. Thermal Conductivity of Carbonate Rocks. (Reprinted from Eng. Geology, v. 7, p. 3-12, 1973).
- *Reprint 1973-O. Petrographic Characteristics and Physical Properties of Marls, Chalks, Shells, and Their Calcines Related to Desulfurization of Flue Gases. (Reprinted from Final Report to Control Systems Lab. of U.S. Environmental Protection Agency, Contract 68-02-0212, 114 p., 1973). Includes samples described in EGN 55 and chalks from Alabama, Nebraska, Kansas, Texas, and Arizona.
- Reprint 1977-C. Behavior of Dolomite in Absorption of H₂S from Fuel Gas. (Reprinted from World Mining and Metals Technology, v. 1, p. 168-188, 1976). Investigations by x-ray diffraction, SEM, and microprobe of dolomite and half-calcined dolomite reacted with dilute H₂S gas stream.

*Out of print.

Reprint 1978-G. Absorption and Other Properties of Carbonate Rock Affecting Soundness of Aggregate. (Reprinted from Geological Society of America, Engineering Case Histories Number 11, p. 7-16, 1978).

Sand and gravel

- B 50. Natural-Bonded Molding Sand Resources of Illinois. 1925. 183 p., 49 figs., 32 tables. Resources in 40 counties; sieve, bond strength, permeability, and other tests.
- *B 53. Geology and Economic Resources of the St. Peter Sandstone of Illinois. 1928. 175 p., 3 pls., 43 figs., 15 tables. Resources, distribution, mineralogy, sieve tests, and uses; silica sand.
- *B 66. Geology and Mineral Resources of the Marseilles, Ottawa, and Streator Quadrangles. 1942. P. 234-243, 4 figs., 2 tables. Resources, distribution, chemical analyses, and uses of St. Peter Sandstone (source of silica sand).
- *RI 57. Fine-Grained Molding Sand Resources of Northern Illinois: A Preliminary Investigation. 1939. 53 p., 5 figs. Sand for nonferrous and gray iron castings, especially in Cook, Henry, Jo Daviess, Mason, and Whiteside Counties; sieve tests.
- *RI 79. Feldspar in Illinois Sands—A Study of Resources. 1942. 87 p., 13 figs., 5 tables. Occurrence of sands, feldspar content, and sieve tests.
- *C 3. Preliminary Report on the Sand and Gravel Resources of the Buda Quadrangle. 1932. 8 p., 1 map.
- *C 100. Early Ordovician Strata along Fox River in Northern Illinois. 1943. 11 p., 4 figs. Data on silica sand deposits.
- *C 179. Short Papers on Geologic Subjects: (2) Notes on the Illinois "Lafayette" Gravel. 1952. P. 95-108, 10 figs., 6 tables. Particle size, pebble counts, shape, roundness, polish, and fossils.
- *C 184. Sands and Silts of Extreme Southern Illinois: A Preliminary Report. 1953. 28 p., 1 fig., 5 tables. Deposits, chemical composition, and sieve tests.
- *C 294. Sand and Gravel Resources of Champaign County, Illinois. 1960. 15 p., 1 pl., 3 figs., 3 tables.
- *C 299. Sand and Gravel Resources of Kane County, Illinois. 1960. 11 p., 1 map pl., 1 fig., 5 tables.
- C 335. Silica Brick from Northern Illinois Silica Sand. 1962. 18 p., 6 figs., 7 tables. Calcium and aluminum phosphates used as binders.
- *C 336. Sand and Gravel Resources of McHenry County, Illinois. 1962. 15 p., 1 pl., 1 fig., 4 tables. Deposits; sieve tests.
- C 359. Sand and Gravel Resources of Northeastern Illinois. 1964. 8 p., 1 map pl., 2 figs. Covers greater Chicago area.
- C 367. Sand and Gravel Resources of De Kalb County. 1964. 16 p., 1 map pl., 2 figs., 4 tables. Deposits; sieve tests.
- C 381. Sand and Gravel Resources of Peoria County. 1965. 16 p., 1 map pl., 2 figs., 4 tables. Deposits; sieve tests.
- C 391. Feldspar in Illinois Sands: A Further Study. 1965. 19 p., 4 figs., 5 tables.
- C 399. Sand and Gravel Resources of Tazewell County, Illinois. 1966. 22 p., 1 pl., 3 figs., 4 tables.
- C 402. Heavy Minerals in Sands Along the Wabash River. 1966. 24 p., 3 figs., 5 tables.
- C 414. Sand and Gravel Resources Along the Rock River in Illinois. 1967. 17 p., 1 pl., 2 figs., 7 tables.
- *C 417. Sand and Gravel Resources of Boone County, Illinois. 1967. 14 p., 1 pl., 1 fig., 4 tables.
- *C 422. Geology Related to Land Use in the Hennepin Region. 1968. 24 p., 10 figs., 2 tables. Includes data on sand and gravel.
- C 428. Heavy Minerals of the Cretaceous and Tertiary Sands of Extreme Southern Illinois. 1968. 22 p., 5 figs., 6 tables.
- *C 438. Geology for Planning in McHenry County. 1969. 31 p., 2 figs., 1 table, app. Data on sand and gravel are included.
- C 442. Glacial Geology of the Vandalia, Illinois, Region. 1969. 23 p., 8 figs., 4 tables, app. Data on sand and gravel are given.
- C 446. Sand and Gravel Resources of Macon County, Illinois. 1969. 16 p., 1 pl., 1 fig., 4 tables.
- C 452. Sand and Gravel Resources of Sangamon County, Illinois. 1970. 20 p., 2 figs., 4 tables, app.
- C 460. Summary of the Geology of the Chicago Area. 1971. 80 p., 1 pl., 27 figs. Includes data on sand and gravel.
- C 464. Sand and Gravel Resources of Mason County, Illinois. 1971. 20 p., 1 pl., 4 figs., 4 tables, 2 app.
- C 465. Geology for Planning in St. Clair County, Illinois. 1971. 35 p., 8 pls., 4 figs., 8 tables. Includes discussion of sand and gravel resources.
- *C 466. Deltaic Sedimentation in Glacial Lake Douglas. 1971. 12 p., 5 figs., 1 table.
- C 478. Geology Along the Illinois Waterway—A Basis for Environmental Planning. 1973. 48 p., 7 pl., 6 figs., 2 tables. Summary of resources, by district,

*Out of print.

of bottomlands, bluffs, and 1-mile-wide strip of upland; stratigraphy, surficial geology maps.

C 481. Geology for Planning in Lake County. 1973. 43 p., 4 pls., 10 figs., 1 table, app. Includes discussion and map of sand and gravel resources.

C 497. Geology for Planning in the Springfield-Decatur Region, Illinois. 1977. 76 p., 7 pl., 21 figs., 8 tables, 2 app. Includes discussion and map of sand and gravel resources.

C 503. Sand and Gravel and Peat Resources in Northeastern Illinois. 1978. 11 p., 1 fig., 1 pl. Types of deposits in Cook, Du Page, Kane, Lake, McHenry, and Will Counties shown on map and discussed in text.

*IMN 1. Heavy Minerals in Illinois Glacial Sands. 1954. P. 2-3.

*IMN 3. Trace Elements and Potash in Some Illinois Gravels. 1956. P. 2-3, 4 tables.

*IMN 8. Origin of Illinois Sand and Gravel Deposits. 1958. 9 p., 16 figs. A simple, brief account of the origin of Illinois sand and gravel deposits.

*IMN 10. Recent Price and Cost Trends Relating to Stone, Sand, and Gravel Production in Illinois. 1959. 4 p.

IMN 38. Kankakee Dune Sands as a Commercial Source of Feldspar. 1969. 17 p., 5 figs., 4 tables.

IMN 42. An Investigation of Sands on the Uplands Adjacent to the Sangamon River Floodplain: Possibilities as a "Blend Sand" Resource. 1970. 10 p., 3 figs., 3 tables, index.

IMN 43. Lower Mississippi River Terrace Sands as a Commercial Source of Feldspar. 1970. 18 p., 3 figs., 3 tables.

IMN 59. The Distribution and Physical Properties of Chert Gravel in Pike County, Illinois. 1974. 21 p., 7 figs., 3 tables, app. Resources of Cretaceous Hadley Gravel and Pleistocene-Holocene stream-valley gravels for use as construction aggregate. Includes data on roundness, abrasion resistance, soundness, water absorption, specific gravity, and chemical composition; maps show distribution of gravel types.

*EGN 33. Geology for Planning in De Kalb County, Illinois. 1970. 26 p., 6 figs. Includes data on sand and gravel.

*EGN 36. Geology for Planning at Crescent City, Illinois. 1970. 15 p., 5 figs. Gives data on sand deposits.

EGN 63. Sedimentology of a Beach-Ridge Complex and Its Significance in Land-Use Planning. 1973. 24 p., 20 figs. Investigations of Lake Michigan beach-ridge complex near Waukegan by drilling, trenching, and outcrop examination; includes profiles, maps, and data on particle size.

EGN 67. Sediment Distribution in a Beach-Ridge Complex and Its Application to Artificial Beach Replenishment. 1974. 26 p., 20 figs., 1 table. Amplification of studies described in EGN 63.

EGN 83. Geology for Planning in De Witt County, Illinois. 1977. 42 p., 15 figs., 2 tables, 2 app. Includes discussion and map of sand and gravel resources.

*Reprint 1967-J. A Rapid Method for Determining Weight Percentages of Unsieved Heavy Minerals. 1967. 8 p., 3 figs., 6 tables. Describes a means of determining the weight percentage of heavy minerals in sands.

*Reprint 1967-L. The Petrography of Some Illinois Pleistocene and Recent Sands. 1967. 18 p., 4 figs., 2 tables. Gives mineral composition of sands.

*Reprint 1968-I. A New Method for Making Pebble Counts. 1968. 2 p., 1 fig. A means of determining the kinds of rocks composing gravel.

*Reprint 1970-L. A Technique for the Rapid Determination of the Light Minerals of Detrital Sands. 1970. 3 p.

Silica sand

*B 37. Geology and Mineral Resources of the Hennepin and La Salle Quadrangles. 1919. 136 p., 6 pl., 36 figs. Information on silica sand deposits.

*B 49. Geology and Mineral Resources of the Dixon Quadrangle. 1926. 141 p., 5 pl., 20 figs. Information on silica sand deposits.

*B 53. Geology and Economic Resources of the St. Peter Sandstone of Illinois. 1928. 175 p., 3 pl., 43 figs., 15 tables. Resources, distribution, mineralogy, sieve tests, and uses; silica sand.

*B 66. Geology and Mineral Resources of the Marseilles, Ottawa, and Streator Quadrangles. 1942. P. 234-243, 4 figs., 2 tables. Resources, distribution, chemical analyses, and uses of St. Peter Sandstone (source of silica sand).

*C 100. Early Ordovician Strata along Fox River in Northern Illinois. 1943. 11 p., 4 figs. Data on silica sand deposits.

C 335. Silica Brick from Northern Illinois Silica Sand. 1962. 18 p., 6 figs., 7 tables. Calcium and aluminum phosphates used as binders.

*C 422. Geology Related to Land Use in the Hennepin Region. 1968. 24 p., 10 figs., 2 tables. Includes data on silica sand.

C 444. A Study of the Surface Areas of Particulate Microcrystalline Silica and Silica Sand. 1969. 12 p., 3 figs., 2 tables.

IMN 32. Silica Sand Briquets and Pellets as a Replacement for Quartzite. 1968. 8 p., 1 pl., 2 figs.

*Out of print.

- *IMN 36. Beneficiation of Kaolinite Clay from Silica Sand Washings. 1968. 10 p., 2 figs., 5 tables.

Molding sand

- B 50. Natural-Bonded Molding Sand Resources of Illinois. 1925. 183 p., 49 figs., 32 tables. Resources in 40 counties; sieve, bond strength, permeability, and other tests.
- *B 53. Geology and Economic Resources of the St. Peter Sandstone of Illinois. 1928. 175 p., 3 pl., 43 figs., 15 tables. Resources, distribution, mineralogy, sieve tests, and uses; silica sand.
- *B 66. Geology and Mineral Resources of the Marseilles, Ottawa, and Streator Quadrangles. 1942. P. 234-243, 4 figs., 2 tables. Resources distribution, chemical analyses, and uses of St. Peter Sandstone (source of silica sand).
- *RI 57. Fine-Grained Molding Sand Resources of Northern Illinois. 1939. 53 p., 5 figs. Sand for non-ferrous and gray iron castings, especially in Cook, Henry, Jo Daviess, Mason, and Whiteside Counties; sieve tests.

Clay and shale

- *B 4. Year Book. Preliminary Investigation of Illinois Fire Clays. 1907. P. 129-175, 1 map, 3 figs., 1 table. Resources, especially in extreme southern Illinois; chemical analyses and pyrometric tests.
- *B 9. Paving Brick and Paving Brick Clays of Illinois. 1908. 318 p., 3 pl., 33 figs. Clay deposits, qualities of clays and bricks, and brick pavements.
- B 17. Portland-Cement Resources of Illinois. 1912. 121 p., 19 pls., 3 tables. Raw materials including clays in selected areas; cement manufacture.
- B 30. Biennial Report. Pennsylvanian Fireclays of Illinois. P. 61-73, 2 figs.; Relations of Loess and Drift in Canton Quadrangle. 1917. 1 pl., 1 fig.
- B 38D. Further Investigations of Illinois Fire-Clays. 1921. 149 p., 14 figs., 1 table. Deposits in 20 counties; methods of testing; ceramic tests.
- *B 38F. Notes on Illinois Bituminous Shales, Including Results of Their Experimental Distillation. 1922. 19 p., 4 figs., 17 tables. Occurrences in 8 counties; distillation tests.
- B 69. Amenability of Various Types of Clay Minerals to Alumina Extraction by the Lime Sinter and Lime-Soda Sinter Processes. 1945. 77 p., 24 figs., 12 tables.
- *Min. Inv. B 18. Tests on Clay Materials Available in Illinois Coal Mines. 1917. 130 p., 62 figs. Burning tests on 106 samples from 20 counties.

- RI 8. Preliminary Report on the Economic Mineral Resources of Calhoun County. 1926. 21 p., 3 figs. Data on shale, clay, and other materials.

- RI 15. Preliminary Report on the Fuller's Earth Deposits of Pulaski County. 1928. 31 p., 8 figs. Deposits in Pulaski, Massac, and Alexander Counties; specific volume and apparent acidity tests.

- RI 22. Refractory Clays in Calhoun and Pike Counties, Illinois. 1931. 43 p., 6 figs. Deposits; ceramic tests on 22 samples.

- *RI 26. Petrology of the Fuller's Earth Deposits, at Olmsted, Illinois, with a Brief Study of Some Non-Illinois Earths. 1933. 20 p., 15 figs., 4 tables. Occurrence; mineral composition of fuller's earth at Olmsted; petrographic data on 14 other earths.

- *RI 27. Anna "Kaolin" as a New Decolorizing Agent for Edible Oils. 1933. 42 p., 7 figs. Decolorization; rate of filtration; oil retained by earth.

- *RI 53. A Unique Clay from the Goose Lake, Illinois, Area. 1939. 20 p., 4 figs. Occurrence, constitution, properties, and uses.

- *RI 64. Tests of Face Brick from Illinois and Other States. 1940. 32 p., 5 figs. Tests on Illinois, Ohio, Indiana, and Pennsylvania brick.

- RI 100. Illinois Clays and Shales as Mortar Mix. 1944. 55 p., 12 figs., 20 tables.

- RI 102. The Bonding Action of Clays. Part I—Clays in Green Molding Sands. 1945. 55 p., 20 figs., 8 tables. (See also RI 110).

- RI 104. Illinois Surface Clays as Bonding Clays for Molding Sands—An Exploratory Study. 1945. 41 p., 3 figs., 11 tables. Tests on clays, including till, gumbootil, lake clays, and residual clays.

- RI 110. The Bonding Action of Clays. Part II—Clays in Dry Molding Sands. 1946. 36 p., 17 figs., 4 tables. (See also RI 102).

- RI 128. Clay and Shale Resources of Extreme Southern Illinois. 1948. 107 p., 8 figs., 2 tables. Deposits; more than 50 ceramic tests; 32 chemical analyses.

- RI 202. Vanadium Efflorescence and Its Control by the Use of Fluorspar. 1957. 29 p., 11 figs., 10 tables.

- RI 203. Petrology of Paleozoic Shales of Illinois. 1957. 35 p., 5 figs., 5 tables, app. Mineral and chemical composition, differential thermal analyses, optical properties, and other data.

- RI 208. Water Sorption Properties of Homoionic Clay Minerals. 1958. 46 p., 16 figs., 4 tables. Data on 7 groups of clay minerals.

- *C 39. Gumbotil as a Potential Source of Rotary Drilling Mud, Bonding Clay, and Bleaching Clay. 1938. 23 p., 4 figs.

*Out of print.

- *C 83. Halloysite Clay in Illinois. 1942. 3 p. Deposit in Pope County.
- *C 162. Olmsted Fuller's Earth as a Bonding Clay for Foundry Use. 1950. 5 p., 3 tables.
- *C 168. Reactions Accompanying the Firing of Brick. 1951. 6 p., 4 figs., 2 tables.
- *C 188. Ceramic Materials from Magnesium-Treated Clays. 1954. P. 165-168, 2 tables.
- *C 208. Illinois Oil Shales. 1956. 22 p., 2 figs., 6 tables. Oil content and other data on 120 samples.
- C 233. Pottery Clay Resources of Illinois. 1957. 8 p., 2 figs. Preliminary tests; general distribution.
- *C 266. Water-Sorption Characteristics of Clay Minerals. 1959. 20 p., 22 figs. Data on kaolinite, illite, chlorite, and montmorillonite.
- C 277. Light-Burning Clay Resources in La Salle County, Illinois. 1959. 27 p., 3 figs. Deposits, firing, and bonding tests.
- C 282. Chemical and Spectrochemical Analyses of Illinois Clay Materials. 1959. 55 p., 2 tables. Over 500 analyses.
- C 290. Lightweight Aggregate from Illinois Shales. 1960. 29 p., 2 pl., 2 figs., 2 tables. Mineral and chemical composition; causes of bloating; tests on 76 samples.
- C 302. Lower Pennsylvanian Clay Resources of Knox County, Illinois. 1960. 19 p., 1 fig. Ceramic and bonding tests on 39 samples.
- C 303. Ceramic Tests of Illinois Clays and Shales. 1960. 72 p., 1 fig. More than 125 tests of samples from 59 counties.
- C 307. Chemical Evaluation of Illinois Oil Shales. 1960. 22 p., 3 figs., 11 tables, app. Detailed study of chemical and physical characteristics of products produced by the retorting of 5 samples.
- C 322. Lower Pennsylvanian Clay Resources of Rock Island, Mercer, and Henry Counties, Illinois. 1961. 40 p., 1 fig. Ceramic and bonding tests on 95 samples.
- *C 334. Stratigraphy and Mineralogy of the Wisconsinan Loesses of Illinois. 1962. 55 p., 1 pl., 3 figs., 6 tables, 15 geol. secs.
- *C 347. Mineralogy of Glacial Till and Their Weathering Profiles in Illinois. Part I—Glacial Till. 1963. 55 p., 9 figs., 6 tables, 8 geol. secs. (See also C 400).
- C 352. Buff-Burning Clay Resources of Southwestern and Southern Illinois. 1963. 23 p., 4 figs., 3 tables, 3 app. Ceramic and bonding properties of 66 samples.
- C 353. Buff-Burning Clay Resources of Western Illinois. 1963. 23 p., 3 figs., 1 table, app. Ceramic and bonding properties of 110 samples.
- *C 371. Illinois Clay Resources for Lightweight Ceramic Block. 1964. 15 p., 5 figs., 1 table. Tests of 7 shales and clays as bonding material for lightweight shale aggregate.
- *C 400. Mineralogy of Glacial Till and Their Weathering Profiles in Illinois. Part II—Weathering Profiles. 1966. 76 p., 6 figs., 32 tables. (See also C 347).
- C 405. Long-Term Dimensional Changes in Illinois Bricks and Other Clay Products. 1966. 44 p., 14 figs., app.
- *C 422. Geology Related to Land Use in the Hennepin Region. 1968. 24 p., 10 figs., 2 tables. Gives data on clay and shale.
- C 427. Mineral Zonation of Woodfordian Loesses of Illinois. 1968. 44 p., 7 figs., 5 tables, app.
- *C 429. Petrography of Pennsylvanian Underclays in Illinois and Their Application to Some Mineral Industries. 1968. 36 p., 7 figs., 3 tables, app.
- *C 437. Glacial Till of Northwestern Illinois. 1969. 47 p., 7 figs., app.
- *C 438. Geology for Planning in McHenry County. 1969. 31 p., 2 figs., app. Contains data on clay.
- C 442. Glacial Geology of the Vandalia, Illinois, Region. 1969. 23 p., 8 figs., 4 tables, app. Data on glacial clay are included.
- C 457. Old Glacial Drift Near Danville, Illinois. 1971. 16 p., 3 figs., 1 table.
- *C 459. Glacial Drift of the Shelbyville Moraine. 1971. 24 p., 5 figs., 1 table. Gives data on glacial clay.
- C 460. Summary of the Geology of the Chicago Area. 1971. 80 p., 1 pl., 27 figs. Includes data on clay and shale.
- C 465. Geology for Planning in St. Clair County, Illinois. 1971. 35 p., 8 pls., 4 figs., 8 tables. Includes description of clay and shale resources.
- *IMN 2. Lightweight Brick from Clay and Peat or Shredded Corn Cobs. 1955. P. 3-4.
- *IMN 9. Shales as Source Material for Synthetic Lightweight Aggregate. 1959. 5 p.
- *IMN 11. Rare Earth and Trace Element Content of an Unusual Clay on Hicks Dome in Hardin County, Illinois. 1960. 6 p., 1 fig., 3 tables.
- *IMN 12. A Survey of Some Illinois Materials Possibly Useful as Pozzolans. 1961. 6 p., 1 table. Tests of 12 clays, 4 shales, and 2 silicas.
- *IMN 16. Refractory Clay Resources of Illinois. 1962. 4 p., 1 fig. A general discussion.

*Out of print.

- *IMN 18. Permanent Expansion in Bricks. 1964. 5 p., 4 figs. Tests of Illinois brick showed expansion not acute.
- *IMN 22. Illinois Clays as Binders for Iron Ore Pellets. 1965. 8 p., 1 fig., 4 tables. Tests of 7 clays showed promise.
- *IMN 28. Illinois Clays as Binders for Iron Ore Pellets—A Further Study. 1966. 14 p., 1 fig., 8 tables.
- IMN 29. Clay and Shale Resources of Clark, Crawford, Cumberland, Edgar, Effingham, Jasper, and Vermilion Counties, Illinois. 1967. 23 p., 3 figs., 2 tables.
- IMN 30. Lightweight Bricks Made with Clay and Expanded Plastic. 1967. 8 p., 1 pl., 2 tables.
- IMN 31. Clays as Binding Materials. 1967. 32 p. Uses of different types of clay for binders are described.
- *IMN 33. A New Use for Illinois Clay Materials in Pesticide Formulations. 1968. 13 p., 1 fig., 2 tables.
- *IMN 36. Beneficiation of Kaolinite Clay from Silica Sand Washings. 1968. 10 p., 2 figs., 5 tables.
- IMN 45. Clay and Shale Resources of Madison, Monroe, and St. Clair Counties, Illinois. 1971. 18 p., 3 figs., app.
- IMN 49. Clay and Shale Resources of Peoria and Tazewell Counties, Illinois. 1973. 13 p., 3 figs., 2 tables, app. Ceramic tests on 36 samples; identifies deposits with commercial potential.
- *Reprint 1956-E. Clay Mineralogy of Some Basal Pennsylvanian Sandstones, Clays, and Shales. 1956. 5 p., 4 figs.
- *Reprint 1956-R. Underclay Squeezes in Coal Mines. 1956. 5 p., 4 figs., 6 tables. Clay mineralogy in squeeze and nonsqueeze areas.
- *Reprint 1957-L. Controlling Vanadium Efflorescence. 1957. 2 p., 3 figs. A use for fluorspar.
- *Reprint 1958-BB. Itinerary of Field Trip for Fifth National Clay Conference, October 8, 1956. 1958. 3 p. Describes 3 soil profiles; exposure of Fithian illite.
- *Reprint 1958-CC. Clay Mineralogy of Pennsylvanian Sediments in Southern Illinois. 1958. 15 p., 6 figs., 1 table. Environment of deposition and clay mineralogy.
- Reprint 1959-K. Clay Mineralogy as Applied to Secondary Recovery Problems. 1959. 4 p., 7 figs.
- *Reprint 1961-O. A Clay Mineral Sequence at the Mississippian-Pennsylvanian Unconformity in the Illinois Basin. 1961. 11 p., 6 figs., 1 table.
- *Reprint 1963-L. Contact Temperature of a Peridotite Dike with Pennsylvanian Shale Determined by Clay Mineral Alterations. 1963. 9 p., 5 figs., 1 table. Indicates temperature of 525° to 550° C.
- *Reprint 1965-R. Clay Materials and Structural Clay Products. 1965. 6 p., 6 tables. Mineralogy, chemical composition, organic matter, and chemical properties.
- *Reprint 1965-T. Middle and Late Pennsylvanian Flint Clays. 1965. 9 p., 6 figs.
- *Reprint 1967-K. Clay Fabric and Its Relation to Structural Properties in Mid-Continent Pennsylvanian Sediments. 1967. 14 p., 8 figs., 3 tables.
- *Reprint 1968-L. Surface Area of Montmorillonite from the Dynamic Sorption of Nitrogen and Carbon Dioxide. 1968. 9 p., 1 fig., 4 tables.
- *Reprint 1968-W. Clay Mineral Composition, A Source Indicator of Midwest Loess. 1968. 6 p.
- *Reprint 1969-N. Surface Area of Vermiculite with Nitrogen and Carbon Dioxide as Adsorbates. 1969. 5 p., 1 fig., 1 table.
- *Reprint 1970-A. A Flint Clay in Sangamon County, Illinois. 1969. 13 p., 3 figs., 1 table.
- *Reprint 1971-A. Random Clay Powders Prepared by Spray-Drying. 1970. 7 p., 5 figs.
- *Reprint 1971-F. Scanning Electron Microscopy of Clays and Clay Minerals. 1971. 6 p., 14 figs.
- Reprint 1973-G. An Elutriator Method for Particle-Size Analysis with Quantitative Silt Fractionation. 1973. 6 p., 1 fig., 2 tables.
- Reprint 1976-B. Clay Mineralogy of Modern Alluvial Muds of the Mississippi River Basin. 1976. 37 p., 19 figs., 8 tables.
- Silica, tripoli, ganister, novaculite, and calico rock in southern Illinois**
- *B 14. Artificial Silicates with Reference to Amorphous Silica. 1909. p. 276-292, 11 tables. Sand-lime brick from southern Illinois silica.
- *RI 24. Progress Report on the Study of Southern Illinois Silica as a Pottery Material. 1932. 7 p.
- *RI 47. Decolorization of Southern Illinois Silica. 1937. 35 p., 14 figs., 6 tables. Methods, costs, efficiency, corrosion problems.
- RI 117. Southern Illinois Novaculite and Novaculite Gravel for Making Silica Refractories. 1946. 55 p., 29 figs., 16 tables. Materials offer promise when crushed, properly graded, bonded, and fired.
- RI 166. Siliceous Materials of Extreme Southern Illinois—Silica, Novaculite, Ganister, Calico Rock, and Chert Gravels. 1953. 39 p., 17 figs., 11 tables. Silica (tripoli), novaculite, novaculite gravel, ganister,

*Out of print.

calico rock, and shale and chert gravels; deposits, occurrence, characteristics, composition, and uses.

C 444. A Study of the Surface Areas of Particulate Microcrystalline Silica and Silica Sand. 1969. 12 p., 3 figs., 2 tables.

*IMN 12. A Survey of Some Illinois Materials Possibly Useful as Pozzolans. 1961. 6 p., 1 table. Tests of 12 clays, 4 shales, and 2 silicas.

IMN 40. Colloidal-Size Silica Produced from Southern Illinois Tripoli. 1970. 6 p., 3 figs.

Reprint 1975-L. Tripoli. 1975. 10 p., 1 table.

Sandstone

*B 53. Geology and Economic Resources of the St. Peter Sandstone in Illinois. 1928. 175 p., 3 pl., 43 figs., 15 tables. Resources, distribution, mineralogy, sieve tests, and uses.

RI 188. Sandstone Resources of Extreme Southern Illinois—A Preliminary Report. 1955. 21 p., 2 pl., 2 figs., 7 tables. Sieve tests of 65 samples from 30 outcrops; 18 chemical analyses; uses.

*C 331. Chemical and Physical Character of the Pennsylvanian Sandstones in Central Illinois. 1962. 43 p., 5 figs., 11 tables. Deposits, 90 sieve tests, 71 chemical analyses, heavy minerals, clay minerals, and fusion tests.

*IMN 1. Potash Feldspar in the Glenwood Formation Near Oregon, Illinois. 1954. P. 1-2.

Chert

*C 245. Petrography and Origin of Illinois Nodular Cherts. 1957. 25 p., 2 figs., 2 pl. 2 tables. Cherts are epigenetic concretions.

C 468. Properties of Chert Related to Its Reactivity in an Alkaline Environment. 1972. 31 p., 2 pl., 6 figs., 6 tables.

IMN 59. The Distribution and Physical Properties of Chert Gravel in Pike County, Illinois. 1974. 21 p., 7 figs., 3 tables, app. Resources of Cretaceous Hadley Gravel and Pleistocene-Holocene stream-valley gravels for use as construction aggregate; includes data on roundness, abrasion resistance, soundness, water absorption, specific gravity, and chemical composition; maps show distribution of gravel types.

Igneous rocks

*RI 130. Omaha Pool and Mica-Peridotite Intrusives, Gallatin County, Illinois. 1948. 24 p., 11 figs., 1 table.

*RI 178. Metamorphism of Coal by Peridotite Dikes in Southern Illinois. 1955. 18 p., 1 pl., 4 figs., 3 tables.

*RI 197. Igneous Intrusive Rocks in Illinois and Their Economic Significance. 1956. 19 p., 6 pl., 1 fig., 1 table. Dikes and sills and their relation to coal and fluorspar.

C 330. Trace Elements, Rare Earths, and Chemical Composition of Southern Illinois Igneous Rocks. 1962. 12 p., 1 fig., 4 tables. Data on 16 samples.

*C 382. The Precambrian Basement of Illinois. 1965. 13 p., 3 figs., 2 tables. Nature of surface, petrography, relations, and ages of basement rocks.

*Reprint 1963-L. Contact Temperature of a Peridotite Dike with Pennsylvanian Shale Determined by Clay Mineral Alterations. 1963. 9 p., 5 figs., 1 table.

Gypsum and anhydrite

*C 226. Gypsum and Anhydrite in Illinois. 1957. 26 p., 7 figs., 1 table, app. Subsurface deposits in southwestern and southern Illinois.

IMN 50. By-Product Gypsum in Illinois—A New Resource? 1973. 16 p., 3 figs., 3 tables. Acidity tests, chemical analyses, and photomicrographs of samples from by-product gypsum piles at 7 sites in Illinois compared with similar data for natural rock gypsum. Tonnage estimates included.

Brines

*C 393. The Origin of Saline Formation Waters. II. Isotopic Fractionation by Shale Micropore Systems. 1965. 32 p., 8 figs., 2 tables.

*C 397. The Origin of Saline Formation Waters. III. Calcium Chloride Waters. 1966. 60 p., 15 figs., 6 tables.

IP 66. Illinois Oil-Field Brines—Their Geologic Occurrence and Chemical Composition. 1952. 38 p., 13 figs., 1 table.

*Reprint 1966-I. The Origin of Saline Formation Waters. I. Isotopic Composition. 1966. 14 p., 10 figs., 2 tables.

Fluorspar, zinc, and lead in southern Illinois

*B 38. Optical Fluorite in Southern Illinois. 1922. P. 419-425, 1 fig. Properties, uses, and occurrence.

*B 41. Geology of Hardin County and the Adjoining Part of Pope County. 1920. 416 p., 10 pl., 30 figs., 1 map. Geology; mineral resources, especially fluorspar, and lead and zinc ores.

B 58. The Fluorspar Deposits of Hardin and Pope Counties, Illinois. 1931. 116 p., 9 pl., 48 figs. Occurrence, mineralogy, origin, mining, and processing.

*Out of print.

- *B 59. The Fluorspar Industry of the United States with Special Reference to the Illinois-Kentucky District. 1938. 128 p., 14 figs., 39 tables. Economic features.
- *B 76. Geology of the Fluorspar Deposits of Illinois. 1952. 147 p., 7 pl., 25 figs., 4 tables. Geology, history, production, mining, milling, prospecting.
- *RI 68. Effect of Fluorspar on Silicate Melts with Special Reference to Mineral Wool. 1940. 15 p., 6 figs., 4 tables. Fiber diameter of wool and fluorspar content of melt.
- *RI 141. Fluorspar and Fluorine Chemicals. Part I—Economic Aspects of the Fluorspar Industry. Part II—Fluorine Chemicals in Industry. 1949. 70 p., 7 figs., 21 tables.
- RI 202. Vanadium Efflorescence and Its Control by the Use of Fluorspar. 1957. 29 p., 11 figs., 10 tables.
- *C 158. Structures Due to Volume Shrinkage in the Bedding-Replacement Fluorspar Deposits of Southern Illinois. 1949. 11 p., 10 figs.
- *C 296. Illinois Fluorspar. 1960. 36 p., 1 pl., 6 figs., 4 tables. Geology, mining, milling, economic aspects, and uses; a nontechnical account.
- *C 342. Areal Geology of the Illinois Fluorspar District. Part I—Saline Mines, Cave in Rock, De-koen, and Repton Quadrangles. 1963. 43 p., 2 pl., 7 figs., 1 table. (See also C 385 and C 413.) Geology and mineral resources.
- C 363. Aeromagnetic Study of the Hardin County Area. 1964. 12 p., 5 figs.
- C 385. Areal Geology of the Illinois Fluorspar District. Part 2—Karbers Ridge and Rosiclare Quadrangles. 1965. 40 p., 2 pl., 3 figs., 1 table. (See also C 342 and C 413.) Geology and mineral resources.
- C 413. Areal Geology of the Illinois Fluorspar District. Part 3—Herod and Shetlerville Quadrangles. 1967. 41 p., 4 figs., 1 table. (See also C 342 and C 385.)
- C 420. Fluorspar in Illinois. 1968. 64 p., 16 figs., 7 tables, app. Replaces C 296, which is out of print. Geology, mining, milling, economic aspects, and uses; a semitechnical account.
- C 450. A Gravity Survey of Extreme Southeastern Illinois. 1970. 12 p., 1 pl., 4 figs.
- C 501. Aromatic Fluorine Chemistry at the Illinois State Geological Survey. Research Notes, 1934-1976. 1978. 114 p., 1 fig., 16 tables.
- *IMN 7. Outlying Occurrences of Galena, Sphalerite, and Fluorite in Illinois. 1957. 5 p. Occurrences near Alto Pass and Anna and in Hancock and Kendall Counties.
- IMN 17. Pelletizing Illinois Fluorspar. 1963. 3 p. Purpose, physical tests, and commercial production.
- *IMN 26. Binders for Fluorspar Pellets. 1966. 9 p., 1 fig., 4 tables.
- *Guidebook 11. A Geologic Excursion to Fluorspar Mines in Hardin and Pope Counties, Illinois. Illinois-Kentucky Mining District and Adjacent Upper Mississippi Embayment. 1973. 30 p., 11 figs. Background information on the geology of the Illinois fluorspar district and Illinois portion of Mississippi Embayment; brief discussion of geologic points of interest along a route from Paducah, Kentucky, to fluorspar mines; descriptions of Gaskins Mine (vein deposit) and Oxford Mine (bedded deposit).
- *Reprint 1963-N. Experimental Replacement of Oolitic Limestone by Fluorite. 1963. 6 p., 2 figs.
- *Reprint 1968-B. Origin of Stratiform Fluorite Deposits of Southern Illinois. 1967. 12 p., 4 figs., 1 table.
- *Reprint 1969-D. Fluorite-Zinc-Lead Deposits of the Illinois-Kentucky Mining District. 1968. 29 p., 12 figs., 2 tables.

Barite

- *C 179. Short Papers on Geologic Subjects: (4) Barite in La Salle Limestone of Illinois. 1952. P. 126-128., 3 figs. Chiefly of significance to mineralogists or collectors.
- C 265. Barite in the Southern Illinois Fluorspar District. 1959. 14 p., 1 fig., 1 table. Occurrence, distribution, and uses.

Zinc and lead in northwestern Illinois

- *B 21. Lead and Zinc Deposits of Northwestern Illinois. 1914. 120 p., 22 pl., 13 figs. Geology, ore deposits, mines, and prospects.
- *B 26. Geology and Geography of the Galena and Elizabeth Quadrangles. 1916. 233 p., 25 pl., 50 figs. Geology, mineral resources, and development of Jo Daviess County, including history of mining.
- *RI 116. Geological Aspects of Prospecting and Areas for Prospecting in the Zinc-Lead District of Northwestern Illinois. 1946. 48 p., 2 pl., 7 figs., 2 tables. Includes descriptions of many mining properties.
- *RI 124. Geological Structure of the Zinc-Lead District of Northwestern Illinois. 1947. 15 p., 7 pl.
- RI 179. Geochemical Prospecting in the Zinc-Lead District of Northwestern Illinois. 1955. 11 p., 2 figs. Tests of soils by dithizone method.
- RI 210. Crevice Lead-Zinc Deposits of Northwestern Illinois. 1959. 49 p., 6 pl., 11 figs., app. Characteristics, distribution, mineralogy, origin, mines, and future possibilities.

*Out of print.

*C 214. Geologic Structure Map of Northwestern Illinois Zinc-Lead District. 1956. 7 p., 1 pl., 3 figs. Map on scale of 2 inches to the mile.

C 499. Trace Elements in Coal: Occurrence and Distribution. 1977. 154 p., 79 figs., 37 tables, app., index. Minor and trace element and standard coal analyses on 276 samples from various parts of the Illinois Coal Basin and from coal-producing areas in other states. Statistical analyses of data.

*IMN 5. Relation of Sulfate and Chloride to Ore Deposits in the Ordovician Rocks of Jo Daviess County. 1957. P. 3-6, 1 fig. No relation shown by tests of surface rocks.

*IMN 7. Outlying Occurrences of Galena, Sphalerite, and Fluorite in Illinois. 1957. 5 p. Occurrences near Alto Pass and Anna and in Hancock and Kendall Counties.

*Reprint 1960-I. A Structural Analysis of the Northwestern Illinois Zinc-Lead District. 1960. 5 p., 2 figs.

*Reprint 1961-J. Mineralogy and the Question of Zoning Northwestern Illinois Zinc-Lead District. 1961. 17 p., 5 figs., 3 tables.

Reprint 1976-E. Sphalerite in Coals from the Illinois Basin. 1976. 14 p., 13 figs., 2 tables. Data on sphalerite in Illinois coals; description and mineralogy of sphalerite occurrences in northwestern portion of Illinois Coal Basin.

Reprint 1977-H. Characterization by Scanning Electron Microscopy of Mineral Matter in Residues of Coal Liquefaction. 1977. 6 p., 9 figs., 2 tables. Sphalerite remains unaltered in liquefaction residues.

Uranium

C 200. Preliminary Report on Uranium in Hardin County, Illinois. 1955. 22 p., 1 fig., 5 tables. No samples contained more than 0.1 percent U_3O_8 .

C 203. Uranium in Illinois Black Shales. 1955. 15 p., 1 fig., 4 tables. None of 175 samples tested met minimum requirements for ore.

Feldspar

C 391. Feldspar in Illinois Sands: A Further Study. 1965. 19 p., 4 figs., 5 tables. (See RI 79.) Iron content and particle size of feldspar.

*IMN 1. Potash Feldspar in the Glenwood Formation near Oregon, Illinois. 1954. P. 1-2.

IMN 38. Kankakee Dune Sands As a Commercial Source of Feldspar. 1969. 17 p., 5 figs., 4 tables.

IMN 43. Lower Mississippi River Terrace Sands As a Commercial Source of Feldspar. 1970. 18 p., 3 figs., 3 tables.

IMN 56. Commercial Feldspar Resources in Southeastern Kankakee County, Illinois. 1974. 18 p., 2 figs., 8 tables. Further investigations of Kankakee County dune sands (see IMN 38).

*RI 79. Feldspar in Illinois Sands—A Study of Resources. 1942. 87 p., 13 figs., 5 tables. (See C 391.) Deposits, feldspar content, and sieve tests.

Peat and humus

*C 438. Geology for Planning in McHenry County. 1969. 31 p., 2 figs., 1 table, app. Data on peat.

C 460. Summary of the Geology of the Chicago Area. 1971. 80 p., 1 pl., 27 figs. Map shows location of peat deposits.

C 478. Geology along the Illinois Waterway—A Basis for Environmental Planning. 1973. 48 p., 7 pl., 6 figs., 2 tables. Peat deposits indicated on maps, discussed briefly in text.

C 481. Geology for Planning in Lake County, Illinois. 1973. 43 p., 4 pl., 10 figs., 1 table, app. Peat deposits indicated on map, discussed briefly in text.

C 487. Chronology and Molluscan Paleontology of Two Post-Woodfordian Bogs in Northeastern Illinois. 1974. 28 p., 3 figs. Includes descriptions of peat in the bogs.

C 503. Sand and Gravel and Peat Resources in Northeastern Illinois. 1978. 11 p., 1 pl. Deposits in Cook, Du Page, Kane, Lake, McHenry, and Will Counties shown on map and discussed in text.

*IMN 37. Peat and Humus in Illinois. 1969. 14 p., 1 pl., 2 figs., 4 tables.

*Reprint 1968-X. Past and Present Uses of Illinois Quaternary Mineral Materials. 1968. 6 p., 5 figs. Includes data on resources and uses of peat.

Industry statistics and directories

C 455. Mineral Production in Illinois in 1969. 1971. 24 p., 3 figs., 17 tables.

*IMN 48. Illinois Mineral Production by Counties, 1970. 1972. 14 p., 14 tables, 1 map.

*IMN 51. Illinois Mineral Production by Counties, 1971. 1973. 14 p., 14 tables, 1 map.

*IMN 58. Illinois Mineral Industry in 1972 and Review of Preliminary Mineral Production Data for 1973. 1974. 54 p., 14 figs., 39 tables.

*IMN 62. Illinois Mineral Industry in 1973 and Review of Preliminary Mineral Production Data for 1974. 1975. 48 p., 19 figs., 38 tables.

IMN 64. Directory of Illinois Mineral Producers, 1974. 1976. 119 p., 7 figs., 3 tables.

IMN 66. Illinois Mineral Industry in 1974. 1977. 40 p., 14 figs., 31 tables.

*Out of print.

IMN 68. Illinois Mineral Industry in 1975. 1977. 39 p., 14 figs., 34 tables.

*MEB 18. Directory of Illinois Sand and Gravel Producers. 1967. 28 p.

*MEB 25. Directory of Illinois Limestone and Dolomite Producers. 1969. 27 p.

*MEB 28. Illinois Mineral Production by Counties, 1969. 1971. 13 p., 13 tables, 1 map.

MEB 29. Directory of Illinois Mineral Producers. 1971. 12 p. Includes producers of cement, clay and clay products, fluorspar, lead and zinc, natural bonded molding sand, silica sand, tripoli, ganister, and peat.

Others

B 92. Bibliography and Index of Illinois Geology Through 1965. 1968. 373 p.

B 94. Pleistocene Stratigraphy of Illinois. 1970. 204 p., 3 pl., 14 figs., 7 tables, glossary, index.

B 95. Handbook of Illinois Stratigraphy. 1975. 261 p., 176 figs., 3 tables, index.

*C 29. Synthetic Cryolite. 1938. 3 p. Uses and production from fluorspar.

C 209. Unpublished Reports on Open File. II—Industrial Minerals. 1956. 8 p. Briefly describes reports dating from 1918, available for consultation at the Geological Survey, on the occurrence or uses of ocher, potash shale, silica (tripoli), ganister, novaculite, cement-making materials, fluorspar, limestone, zinc and lead ores, clay, gravel, and organic material in limestones.

C 402. Heavy Minerals in Sands along the Wabash River. 1966. 24 p., 3 figs., 5 tables.

*C 408. One-Dimensional Disorder in Carbonates. 1967. 61 p., 12 figs., 5 tables, app.

C 428. Heavy Minerals of the Cretaceous and Tertiary Sands of Extreme Southern Illinois. 1968. 22 p., 5 figs., 6 tables.

C 490. Glacial Drift in Illinois: Thickness and Character. 1975. 35 p., 2 pls., 5 figs., 1 table, app. Includes map at scale of 1:500,000 showing drift thickness in Illinois.

C 494. The Gravity Field and Tectonics of Illinois. 1976. 28 p., 4 pl., 14 figs., 2 tables.

C 495. An Aeromagnetic Survey of Southwestern Illinois. 1976. 28 p., 1 pl., 11 figs., 2 tables.

C 499. Trace Elements in Coal: Occurrence and Distribution. 1977. 154 p., 79 figs., 37 tables, app., index.

*IMN 1. Potash Feldspar in the Glenwood Formation Near Oregon, Illinois. 1954. P. 1-2.

*IMN 6. Trend in Fuel Uses in Selected Industrial Minerals Products, 1947 and 1954. 1957. 4 p., 3 tables. Trends in cement, glass, and clay products manufacture.

*IMN 11. Rare Earth and Trace Element Content of an Unusual Clay on Hicks Dome in Hardin County, Illinois. 1960. 6 p., 1 fig., 3 tables.

IMN 19. Binding Materials Used in Making Pellets and Briquets. 1964. 46 p. A literature review; extensive bibliography.

*IMN 44. Analyses of Some Illinois Rocks for Gold. 1970. 14 p., 1 fig., 4 tables.

*IMN 46. Sideritic Concretions in Illinois Shale, Gravel, and Till. 1971. 17 p., 6 figs., 1 table.

IMN 61. Behavior of Coal Ash in Gasification Beds of Ignifluid Boilers. 1975. 25 p., 5 pl., 3 figs., 4 tables. Discusses character and mineralogy of coal ash from fluid-bed combustion.

*EGN 16. Urban Expansion—An Opportunity and a Challenge to Industrial Mineral Producers. 1967. 19 p., 15 figs., 1 table.

*EGN 49. Environmental Quality Control and Minerals. 1971. 10 p., 6 figs.

*EGN 70. Land Resource—Its Use and Analysis. 1974. 6 p.

EGN 73. Illinois Geology from Space. 1975. 36 p., 19 figs., 2 tables, app. Discusses availability and usefulness of ERTS-I images of Illinois.

Ed. Ser. 8. Industrial Minerals and Metals of Illinois. 1965. 48 p., 23 figs. A nontechnical account of the formation, occurrence, production, and uses of over 22 materials.

*Ed. Ser. 10. History of Illinois Mineral Industries. 1968. 30 p., 11 figs.

MEB 12. Mineral Resources and Mineral Industries of the East St. Louis Region, Illinois. 1966. 32 p., 24 figs., 4 tables.

*MEB 13. Mineral Resources and Mineral Industries of the Extreme Southern Illinois Region. 1966. 26 p., 14 figs., 2 tables.

*MEB 14. Mineral Resources and Mineral Industries of the Southeastern Illinois Region. 1966. 36 p., 26 figs., 3 tables.

*MEB 15. Mineral Resources and Mineral Industries of the East-Central Illinois Region. 1967. 39 p., 27 figs., 4 tables.

MEB 17. Mineral Resources and Mineral Industries

*Out of print.

of the Springfield Region, Illinois. 1967. 35 p., 25 figs., 4 tables.

MEB 19. Mineral Resources and Mineral Industries of the Western Illinois Region. 1967. 35 p., 24 figs., 4 tables.

MEB 20. Mineral Resources and Mineral Industries of the Northwestern Illinois Region. 1967. 25 p., 16 figs., 2 tables.

MEB 22. Mineral Resources and Mineral Industries of the Northeastern Illinois Region. 1968. 28 p., 21 figs., 2 tables.

Reprint 1966-J. Calcium and Bromine Contents of Natural Waters. 1966. 2 p., 1 fig.

*Reprint 1968-F. Minerals for Construction. 1968. 6 p., 2 figs., 5 tables.

Reprint 1968-I. A New Method for Making Pebble Counts. 1968. 2 p., 1 fig.

*Reprint 1968-X. Past and Present Uses of Illinois Quaternary Mineral Materials. 1968. 6 p., 5 figs.
A review covering clay, sand and gravel, feldspar-bearing sand, peat, natural bonded molding sand, glacial drift gas, boulders, marl, tufa, iron ore, and saltpeter.

*Reprint 1970-L. A Technique for the Rapid Determination of the Light Minerals of Detrital Sands. 1970. 3 p.

Reprint 1970-P. Research and Service of the Illinois State Geological Survey. 1970. P. 14-20.

Reprint 1977-H. Characterization by Scanning Electron Microscopy of Mineral Matter in Residues of Coal Liquefaction. 1977. 6 p., 9 figs., 2 tables.
Discusses behavior of mineral matter in coal during liquefaction process.

Guide Leaflets. A series of geological science field trip guide leaflets providing a one-day tour of the geological features in a limited area. Approximately 80 leaflets are available for various parts of the state. Most of them describe the mineral resources in the area of study.

Quadrangle reports. The Illinois State Geological Survey has issued many reports on specific quadrangles of the state, areas 13 miles wide and 18 miles long. Each report considers the geology and mineral resources of one such area. Information on these reports is available from the Illinois State Geological Survey, Natural Resources Building, Urbana, IL 61801.

Maps

Blue-line prints of maps showing limestone or sand and gravel resources in various areas of Illinois are available separately. A small charge, plus 5 percent State Retailers' Occupation Tax, is made for these maps.

Preliminary Map of Limestone Outcrops. 1950. State map. Scale, 1 inch = 16 miles, 30 cents.

Road Materials Resources Maps. 1930-32, 1935. County maps showing limestone outcrops and sand and gravel resources. Most counties available. Scale, 1 inch = 1 mile. 50 cents each.

Sand and Gravel Resources of Illinois. 1960. Scale, 1 inch = 16 miles. 30 cents.

County maps.

Scale, 1 inch = 1 mile. 50 cents each.

Champaign (1960)

Cook (northwestern part) (1962)

Du Page (1962)

Kendall (1962)

Lake (1960)

*Out of print.

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29. Directory of Illinois Mineral Producers. 1971.

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